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10/813,798	03/31/2004	Richard R. Hollowbush	D4781-00060 (1121-75)	7562
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Duane Morris LLP IP Department (Harris Corp.) 505 9th Street N.W. Suite 1000 Washington, DC 20004-2166				
EXAMINER				
LEE, PING				
ART UNIT		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/813,798

**Applicant(s)**

HOLLOWBUSH ET AL.

**Examiner**

Ping Lee

**Art Unit**

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 May 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 14-17, 19-26 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-10, 14-17 and 19-26 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. The indicated allowability of claims 1-10 and 20-25 are is withdrawn in view of the newly discovered reference(s) to Cleary, Jr. et al. and Eastty. Rejections based on the newly cited reference(s) follow.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 20-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Cleary, Jr. et al (hereafter Cleary) (US 6,977,653).

Regarding claim 20, Cleary discloses a method for representing an audio signal having multiple channels associated with a program, comprising the steps of:

providing digitized amplitude time samples for a plurality of said channels (col. 3, lines 40-41);

at least temporarily deeming one of the channels (center) as a reference channel for at least two other of the channels (left and right) as relative channels;

determining a relative amplitude of the relative channel versus the reference channel (see Fig. 7 or 8; the height of wedges determines the relative amplitude of the relative channel versus the reference channel);

determining a relative phase of the relative channel versus the reference channel (see Fig. 7 or 8; how far apart that the wedge located from the center determine the relative phase of the relative channel versus the reference channel);

changing the channel deemed as the reference channel (uses the left channel, for example as the reference channel); and,

providing a display having at least one mode wherein at least one of:  
the relative amplitude and relative phase are plotted for current samples together with an absolute amplitude;

two of the absolute amplitude and one said relative phase is plotted over a period of time (see Fig. 7 or 8).

Regarding claim 21, Cleary further shows displaying spatial line plots (the height of the wedge) of signal amplitude in a pattern of varying length lines corresponding to signal amplitude for each of a plurality of channels (26LS has different length lines comparing with other length lines of other wedges); displaying the relative amplitude and relative phase of at least one said relative channel in a two dimensional plot in which the relative amplitude and the relative phase are along different axes and the two dimensional plot is associated with the corresponding spatial line plot for the at least one said relative channel (the relative phase is shown on the axis such as 12R, the relative amplitude is shown on the axis such as A in Fig. 7. The same applied to Fig. 8).

Regarding claim 22, Cleary further shows placing the spatial line plots in a radiating pattern around an origin (the listener's head as shown in Fig. 7 or 8) representing nominal speaker positions (by the dash lines) for playback of the channels, spacing the spatial lines plots by a radial distance from the origin (such as A), and plotting in the radial distance a polar plot of relative amplitude and relative phase for at least two said relative channels (Fig. 7 or 8 show the angular coordinates; col. 3, lines 7-14).

Regarding claim 23, Cleary further shows providing said polar plot for a plurality of relative channels (many wedges), the respective polar plot for a given channel being plotted in an angular sector substantially aligned with an associated one of the line plots (see Fig. 7 or 8).

Regarding claim 24, the relative phase between zero and  $180^\circ$  is plotted to a distance from the origin in the angular sector, and relative amplitude is plotted as circumferential displacement along an angle above and below an angle of the associated one of the line plots (using 26R as an example, the relative phase is plotted to a distance from the origin in the angular sector based on the distance of the wedge from the origin, and the relative amplitude is plotted as circumferential displacement A along an angle above, counter clockwise, and below an angle, clockwise, of the associated one of the line plots).

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1-4 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eastty (US 6,021,204).

Regarding claim 1, Eastty discloses a test apparatus for visual display of audio parameters of multiple audio channels of a signal, comprising:

an input to the test apparatus for receiving a signal comprising at least two audio channels, wherein one of the audio channels at least temporarily forms a reference channel (the max among the two) for comparison by the test apparatus with at least the other said channels, each of said other channels at least temporarily forming a relative channel (the channel that is not the max) for comparison of said audio parameters between the relative channel and the reference channel;

an amplitude measurement circuit operable to determine a relative amplitude of the relative channel versus the reference channel (the scaled left or scaled right);

a phase comparator operable to determine a relative phase difference of the relative channel versus the reference channel (represented by the front or the back);

a visual display responsive to the relative amplitude and the relative phase difference, wherein the relative amplitude and the relative phase difference are presented on a same graphic plot on the visual display (Fig. 7a or 8). See abstract. Eastty fails to show the input for receiving a signal comprising at least three audio channels. Eastty teaches a general audio signal testing apparatus for providing visual

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analysis between the left and right signals in order to provide the user some audio characteristics between two audio channels visually. One skilled in the art would have expected that the same analysis could be applied to other channels, such as between front left and rear left, without generating any unexpected effect. At the time of the invention was made, it was well known in the art that a sophisticated audio signal comprising at least three channels. Examiner takes Official Notice that this feature is notoriously well known in the art. For example, a surround sound signal comprises front left, front right, rear left and rear right. Thus, it would have been obvious at the time of the invention was made to modify Eastty by applying the analysis to other audio signal having at least three channels in order to provide visual indication of the audio parameters for an audio signal having at least three channels.

Regarding claim 2, Eastty shows that the relative amplitude and relative phase are presented in the graphic plot by positions plotted for audio samples for the channels, a two dimensional plot for said relative channel presenting relative amplitude and relative phase on different coordinates of the graphic plot (as shown in Fig. 8, different coordinates on y-axis presenting the relative amplitude and relative phase, the position is also determined by time).

Regarding claim 3, Eastty fails to show a separate graphic plot for each of at least two said relative channels. As discussed above, Eastty teaches to compare one reference channel with one relative channel and provide a visual display for display the result. With a sophisticated audio signal comprising at least three channels, one skilled in the art would have analyzed the relative amplitude and relative phase between one

reference channel and the other relative channels in order to determine the relationship among the reference channel and all other channels. Thus, it would have been obvious to one of ordinary skill in the art to provide an additional graphic plot in order to show the comparison between the reference channel and the additional relative channel.

Regarding claim 4, Cleary further shows a graphic display of an absolute parameter (it is represented by the location on the diagonal dash line, such as R in Fig. 7 or 8) for each of a plurality of channels of the signal, wherein the separate graphic plots for said at least two relative channels are respectively located to reference the graphic display of the absolute parameter for a corresponding one of the relative audio channels.

Regarding claim 7, as shown in Fig. 7a, the claimed marker reads on the color representing the stronger signal among the input signals. The selection of the reference channel is changeable by a user selection input because the user can select different audio source to be applied to the analysis as shown in Fig. 2.

Regarding claim 8, Eastty shows a storage device operable to store for a period of time a log representing at least one of values of samples, relative amplitude and phase values (the log is shown in Fig. 8).

Regarding claims 9 and 10, Eastty shows the relative amplitude and relative phase values are used for plotting a graph with respect to time, but fails to show that the time is at least one minute and relative amplitude and the relative phase values are reduced by at least one of decimation and averaging for providing alternative plots over different lengths of time. Eastty broadly teaches that the relative amplitude and phase

of the audio signals could be displayed with respect to time domain. One skilled in the art would have expected that the exact length of time and the resolution of the time frame to be displayed are the decision based on designer's preference and/or system's limitation. By having different resolution, the audio engineer can select the display to give a display over a longer period with less detail or a shorter period with more detail. Examiner takes Official Notice that these features are notoriously well known in the art. Accordingly, one of ordinary skill in the art would have been motivated to modify Easty by allow the audio engineer the ability to view the relative amplitude and relative phase in different resolution.

6. Claims 5, 6, 14-17, 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Easty as applied to claims 1-4 above, and further in view of Cleary.

Regarding claim 5, Easty fails to show a polar plot segmented to provide an area for plotting each of the relative channels. Easty teaches using color having a hue, intensity and/or saturation for presenting the relative amplitude and the relative phase. Cleary teaches that not only the color could be used for presenting the amplitude information, the location of a wedge could be used as well. Cleary shows, in Figs 7 and 8, a graphic display having a polar plot segmented to provide an area for plotting each of the relative channels (such as 26R and 26L). The phase difference between the respective relative channel (right) and the reference channel (center) is plotted to radius (the inner edge of 26R) of the polar plot in a segment corresponding to each of the relative channels, and a relative amplitude of the relative channel compared to the reference channel is plotted to an angle (the angle formed by C to 28 to 26R) with

respect to an reference angle (defined by the location of C) in said segment. Thus, it would have been obvious to one of ordinary skill in the art to modify Eastty in view of Cleary by using a polar plot to present the relative amplitude and the relative phase in order to provide direct visual clue of the relative amplitude and the relative phase with respect to the location of the speakers.

Regarding claim 6, Eastty shows the meter line (for example the dash line R).

Regarding claims 14-17, 19 and 26, Eastty fails to show that the display generator is configured to display selectively a plot of current data chosen from the group consisting of absolute channel amplitude, relative channel amplitude between identified channel pairs, relative phase between identified channel pairs, relative channel amplitude versus any selected one of the channels, relative channel phase versus any selected one of the channels, and a time plot of previous channel amplitude and phase data. Eastty teaches different displays could be used, such as in Fig. 8, a time plot of a channel amplitude and phase data; and such as in Fig. 7a, the relative channel amplitude between identified channel pairs and relative phase between identified channel pairs. In the same field of endeavor, Cleary teaches a graph that shows the absolute amplitude, the relative channel amplitude versus any selected one of the channels and relative channel phase versus any selected one of the channels. Cleary's graph providing audio information using different kind of display. Accordingly, one of ordinary skilled in the art would have been motivated to combine the display formats as taught in Eastty and Cleary in order to provide the user more information about the audio signals.

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cleary in view of Eastty.

Regarding claim 25, Cleary fails to show presenting as an alarm condition a distinct color representation of points having a relative phase that is within a predetermined phase difference of  $180^\circ$ . In the same field of endeavor, Eastty teaches that different hues could be used to represent the condition of the audio signals (col. 6, lines 16-19). An alarm condition is just one of the types of conditions could be possessed by the audio signals. Whether a condition should be considered as an alarm is subject to the designer's preference. Thus, it would have been obvious to one of ordinary skill in the art to modify Cleary in view of Eastty by using colors to represent different conditions, including the subjective alarm condition, so the audio engineer can quickly draw a rough conclusion on the relationship between the audio signals.

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eastty as applied to claims 1-3 above, and further in view of Everett.

Regarding claim 14, Eastty fails to show that the display generator is configured to display selectively a plot of current data chosen from the group consisting of absolute channel amplitude, relative channel amplitude between identified channel pairs, relative phase between identified channel pairs, relative channel amplitude versus any selected one of the channels, relative channel phase versus any selected one of the channels, and a time plot of previous channel amplitude and phase data. Eastty teaches different displays could be used, such as in Fig. 8, a time plot of a channel amplitude and phase data; and such as in Fig. 7a, the relative channel amplitude between identified channel

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pairs and relative phase between identified channel pairs. In the same field of endeavor, Everett teaches the old fashioned bar graph that shows the absolute amplitude, the relative channel amplitude versus any selected one of the channels and relative channel phase versus any selected one of the channels. Everett's graph providing audio information using different kind of display. Accordingly, one of ordinary skilled in the art would have been motivated to combine the display formats as taught in Eastty and Everett in order to provide the user more information about the audio signals.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522. The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ping Lee/  
Primary Examiner, Art Unit 2615

pwl